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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/589,665

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Hiroaki Takaiwa

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OLIFF & BERRIDGE, PLC

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EXAMINER

LIU, MICHAEL

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/589,665	Applicant(s) TAKAIWA, HIROAKI	
	Examiner Michael Liu	Art Unit 2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 March 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-109 is/are pending in the application.
- 4a) Of the above claim(s) 18, 19, 24-26 and 36-109 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-17, 20-23 and 27-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/19/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I and Species A, directed to claims 14-35, in the reply filed on 3/11/09 is acknowledged. The traversal is on the ground(s) that the search and examination of the entire application could be made without serious burden. This is not found persuasive, because the structures of each of the embodiments are mutually exclusive, as recited in the Requirement for Restriction/Election mailed on 2/12/09. Therefore, art recited for one embodiment would not necessarily read on a mutually exclusive structure of a different embodiment.

The requirement is still deemed proper and is therefore made FINAL.

2. Furthermore, Applicant's election identified claims 14-35 as reading on the elected Group I and Species A. However, the examiner respectfully disagrees with indicated claims 18, 19, and 24-26 reading on Group I and Species A.

Elected Species A is described as "the embodiment drawn to having one supply port and one exhaust port with no shielding plate" and shown in Fig 4.

Claim 18 (and dependent claim 19) recites "the gas flow control member is a barrier disposed between the exposure region and the measurement region." Non-elected Species B-D are described as having a shielding plate, or a barrier. On the other hand, elected species A is described as not having a shielding plate.

Claim 24 recites "the gas flow control member includes an intake port and an exhaust port that are respectively formed in the exposure region and the measurement region." Non-elected Species C and D, directed to Figs 6A and 6B, respectively, show

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the intake port 63 formed in the exposure region E and the exhaust port 64 formed in the measurement region A. On the other hand, elected Species A, directed to Fig 4, shows the intake port 63 in the measurement region A and the exhaust port 64 in the exposure region E.

Claim 25 recites "the prevent device includes a first gas intake portion disposed in the exposure region and a second gas intake portion disposed in the measurement region." Non-elected Species D, directed to Fig 6B, shows a first gas intake portion 63 disposed in the exposure region E and a second gas intake portion 63 disposed in the measurement region A. On the other hand, elected Species A, directed to Fig 4, only shows one gas intake portion 63.

Claim 26 recites "the prevent device includes a first gas exhaust portion disposed in the exposure region and a second gas exhaust portion disposed in the measurement region." Non-elected Species C and D, directed to Figs 6A and 6B, respectively, show the prevent device includes a first gas exhaust portion 64 disposed in the exposure region E and a second gas exhaust portion 64 disposed in the measurement region A. On the other hand, elected Species A, directed to Fig 4, only shows one gas exhaust portion 64.

In summary, claims 18 and 19 read on Species B-D, claim 24 and 26 read on Species C and D, and claim 25 reads on Species D. Therefore, claims 18, 19, and 24-26 do not read on elected Species A and are not elected with Species A. Accordingly, claims 18, 19, and 24-26 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a non-elected species.

Priority

3. Acknowledgment is made of Applicant's claim for foreign priority based on an application filed in Japan on 2/19/04. It is noted, however, that Applicant has not filed a certified copy of the JP 2004-043114 application as required by 35 U.S.C. 119(b).

Specification

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Exposure apparatus preventing gas from moving from exposure region to measurement region.

Claim Objections

5. Claims 14-109 are objected to because of the following informalities:

a. Regarding claims 14-109, the Preliminary Amendment filed on 8/22/06 included claims 1-16. Subsequently, in the Preliminary Amendment filed on 11/21/06, claims 1-13 were canceled, and claims 14-109 were newly added. It is assumed that Applicant meant to also cancel claims 14-16. The numbering of new claims cannot replace that of old claims. Accordingly, the claim numbering must be adjusted by renumbering current claims 14-109 to claims 17-112, respectively.

b. In claim 14, "the substrate" lacks antecedent basis. Additionally, the phrase "to prevent gas from moving between the exposure region and the measurement region" should be changed to --to prevent gas from moving from

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the exposure region to the measurement region--. In Species A, it is still possible to move gas from the measurement region to the exposure region.

c. In claim 20, the phrase "movement of the gas between the exposure region and the measurement region is not risen" is confusing and is not supported by the specification.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 14-17, 20, and 27-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Takahashi (5,610,683).

Re claim 14: Takahashi discloses an exposure apparatus [Fig 1] comprising:

an exposure region [Fig 1: on wafer chuck 12] in which, an optical member 7 is disposed, and in which a substrate 2 is exposed to exposure light [from 3] via the optical member [Fig 2];

a measurement region 11-2 in which a sensor is disposed, and in which the substrate is measured using the sensor in advance of exposure at the exposure region [C5L27-29: inherent in prealignment mechanism];

a movable member 9 that holds the substrate and is movable between the exposure region and the measurement region; and

a prevent device 24 which has a gas flow control member to prevent gas [air bubbles] from moving from the exposure region to the measurement region. [C6L41-42: The vacuum pump 24 moves air bubbles from the liquid 23 in the exposure region to outside the system. The air bubbles are not moved to the measurement region.]

Re claim 15: the prevent device 24 sets the environment conditions of the exposure region [C6L41-42: provides negative pressure] or the measurement region or both regions.

Re claim 16: the environment conditions includes cleanliness or temperature or pressure [C6L41-42: negative pressure] or humidity or any combination of these.

Re claim 17: wherein the prevent device 24 is an air conditioning device [C6L41-42: inherent because vacuum pump 24 provides negative pressure to condition air within cassette].

Re claim 20: the gas flow control member controls direction of a flow of gas so that movement of the gas between the exposure region and the measurement region is not risen [C6L41-42: air bubbles do not move from exposure region to measurement region].

Re claim 27: the prevent device 24 includes a suction device [C6L41-42: vacuum pump] that sucks gas of the exposure region.

Re claim 28: the prevent device 24 prevents the gas from moving from the exposure region to the measurement region. [C6L41-42: The vacuum pump 24 moves air bubbles from the liquid 23 in the exposure region to outside the system. The air bubbles are not moved to the measurement region.]

Re claim 29: the substrate is exposed to the exposure light via a liquid 23.

Re claim 30: an immersion device 9 that forms an immersion area 23 partially between the substrate 2 and the optical member 7 [Fig 2].

Re claim 31: the prevent device 24 prevents the gas affected by the liquid from moving from the exposure region to the measurement region. [C6L41-42: The vacuum pump 24 moves air bubbles from the liquid 23 in the exposure region to outside the system. The air bubbles are not moved to the measurement region.]

Re claim 32: a second movable member [second cassette 9 from cassette stock 10] that is disposed in the same space of the movable member and is movable independently [Fig 1: using hands 11-1, 11-3, 11-4] from the movable member.

Re claim 33: the second movable member 9 can hold a substrate 2 [C5L63-64].

Re claim 34: the movable member and the second movable member move on a same base [Fig 1: not labeled; base of exposure apparatus].

Re claim 35: A device manufacturing method [C5L63-C6L21] that includes a lithography process [C6L8: exposure operation], wherein

an exposure apparatus [Fig 1] of claim 14 is used in the lithography process.

8. Claims 14-17, 20-23, 28, and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Deguchi (6,638,672).

Re claim 14: Deguchi discloses an exposure apparatus [Fig 7] comprising:

an exposure region 22 in which, an optical member 2 is disposed, and in which a substrate 26 is exposed to exposure light [from 6] via the optical member [Fig 1];

a measurement region 14 in which a sensor 30b is disposed, and in which the substrate is measured using the sensor in advance of exposure at the exposure region [C10L8-10];

a movable member that holds the substrate and is movable between the exposure region and the measurement region [inherent that substrate held on movable member]; and

a prevent device 27b' which has a gas flow control member 29b to prevent gas [oxygen] from moving from the exposure region to the measurement region. [C10L41-42: The flow rate of the gas curtain 23b' is increased to prevent intrusion of oxygen from the exposure apparatus 22 to the LL chamber 14.]

Re claim 15: the prevent device 27b' sets the environment conditions of the exposure region or the measurement region [Fig 7, C9L50-53: controls flow rate of gas] or both regions.

Re claim 16: the environment conditions includes cleanliness or temperature or pressure [C9L50-53: flow rate of gas associated with pressure] or humidity or any combination of these.

Re claim 17: wherein the prevent device 27b' is an air conditioning device [C9L50-53: inherent because ejection nozzle 27b' controls flow rate of gas to condition air within LL chamber].

Re claim 20: the gas flow control member controls direction of a flow of gas so that movement of the gas between the exposure region and the measurement region is not risen [C10L41-42: oxygen does not move from exposure apparatus to LL chamber].

Re claim 21: the gas flow control member comprises:

a chamber 14, 22, which includes the exposure region and the measurement region, and

a blower 27b' that makes gas within the chamber flow from the measurement region 14 toward the exposure region 22 [Fig 7: inherent that some gas will be transferred along with wafer 26 from LL chamber 14 to exposure apparatus 22].

Re claim 22: the blower comprises:

an intake port 27b' formed on the measurement region 14, and

an exhaust port 24b formed on the exposure region 22 [Fig 7: exhaust port of wafer from LL chamber].

Re claim 23: the blower flows gas from the intake port 27b' toward the exhaust port 24b along a surface [of 14] that the movable member moves thereon [Fig 7].

Re claim 28: the prevent device 27b' prevents the gas from moving from the exposure region to the measurement region. [C10L41-42: The flow rate of the gas curtain 23b' is increased to prevent intrusion of oxygen from the exposure apparatus 22 to the LL chamber 14.]

Re claim 35: A device manufacturing method [Fig 8] that includes a lithography process, wherein

an exposure apparatus [Fig 7] of claim 14 is used in the lithography process.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Liu whose telephone number is 571-272-9019. The examiner can normally be reached on Monday through Friday 9 am - 5 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diane Lee can be reached on 571-272-2399. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael Liu/
3/25/09

Michael Liu
Examiner
Art Unit 2851

/Hung Henry V Nguyen/

Primary Examiner of Art Unit 2851